

Objectives For This Review

- Review current progress on implementation of the Habitat Conservation Plan
- Provide status updates on the conservation strategies
- Discuss priorities for the next 5 year period

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Objectives For This Review

- Successes that have been achieved
- Challenges that have been faced
- Areas that may need improvement

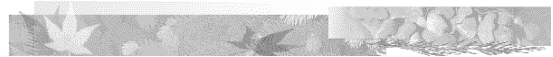
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Objectives For This Review

- Input from USFWS and NOAA Fisheries
 - Where do you think we have been successful?
 - Where do you think we need improvement?
 - What are your expectations for the next 5 year period?

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HCP Implementation Monitoring



5-year Review – Report to
Services
April 7, 2004

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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
- Natural Areas Contributions
- Implementation Planning
- OESF
- Northern Spotted Owl

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Outline of Topics

- Marbled Murrelets
- Other Species
- Monitoring and Research
- Funding for Monitoring and Research
- Implementation, Effectiveness, and Validation Monitoring
- Strengthening HCP Implementation

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Outline of Topics

- Summary of Land Transactions
 - DNR Ownership
 - Acquisitions and dispositions
 - NRF and Dispersal
 - Acquisitions and dispositions
- Summary of Timber Management Activities
- Natural Areas Contributions
- Implementation Planning
- OESF
- Northern Spotted Owl

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Land Transactions DNR Ownership

Summary of Changes
1997-2003

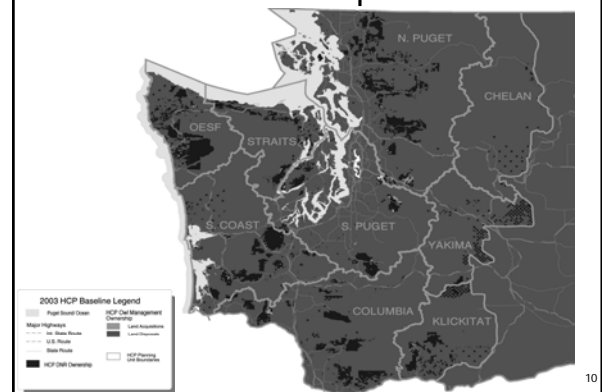
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Baseline DNR Ownership - 1997



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DNR Ownership - 2003



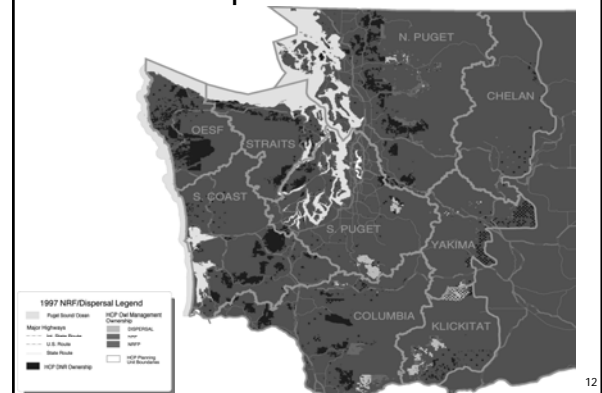
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NRF and Dispersal Lands

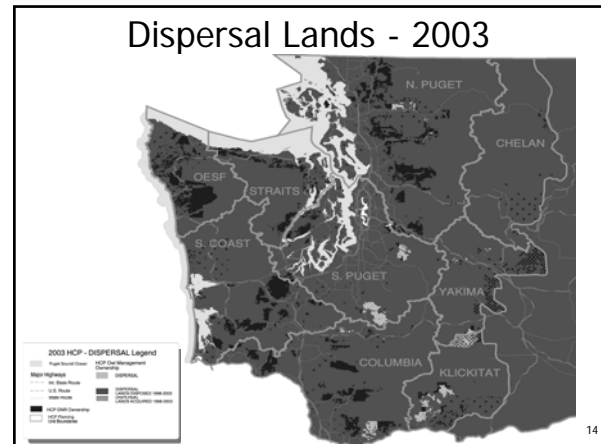
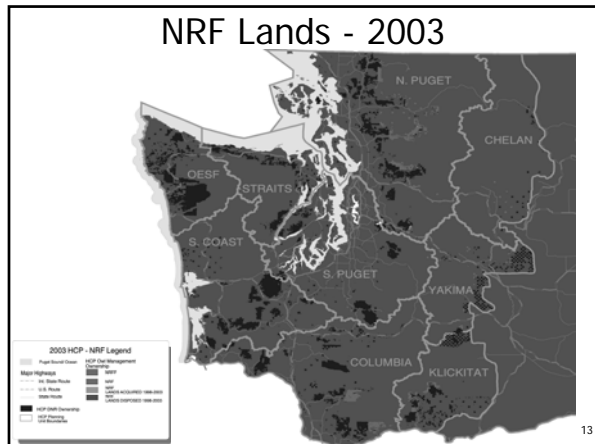
Summary of Changes
1997-2003

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NRF & Dispersal Lands - 1997



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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
 - Comparisons with 10 year projections
- Natural Areas Contributions
- Implementation Planning
- OESF
- Northern Spotted Owl

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HCP Forest Land Management Activities

10 Year Projections vs. 5 Year
Actual Numbers

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Adaptation of Table IV.15, DNR HCP p. IV.211: Estimated amount of forest land management activities on lands covered by the HCP during the first decade of the HCP vs. actual numbers for the first five years

Activity	East-side planning units (acres) - estimate	East-side acres 1 st 5 years - actual ¹	West-side planning units (acres) - estimate	West-side acres 1 st 5 years - actual ¹	OESF planning unit (acres) - estimate	OESF acres 1 st 5 years - actual ¹
Harvest: clearcut	3,000-6,000	1,682	140,000-165,000	45,788	3,000-15,000	1,378
seed tree	0	599	500-1,000	0	0-300	0
shelterwood	1,000-5,000	1,934	1,000-5,000	956	300-1,000	247
selective	25,000-35,000	5,982	20,000-30,000	5,797	8,000-11,300	0
salvage	5,000-10,000	1,182	0	260	1,500-2,500	382
commercial thinning	4,000-10,000	4,078	30,000-45,000	14,702	25,000-35,000	4,102
Site preparation: broadcast burn	0-1,000	0	500-1,000	33	0-1,000	0
herbicide	500-5,000	1,518	5,000-10,000	6,600	0	0
scarification	2,000-8,000	1,213	1,000-3,000	226	0-1,000	0

¹ Actual acres through Fiscal Year 2003 from Planning & Tracking data compiled yearly for HCP annual reports

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Regeneration: planting	6,000-20,000	6,384	120,000-160,000	55,339	3,000-15,000	3,365
natural seeding	30,000-50,000	250	5,000-30,000	240	800-1,200	63
Vegetation management: hand slashing	0	682	60,000-100,000	45,392	5,000-10,000	3,534
ground herbicide	0	3,539	40,000-50,000	13,439	0-1,000	364
aerial herbicide	5,000-15,000	1,327	20,000-30,000	13,639	0-500	0
Forest health: underburning	3,000-10,000	0	0	40	0-500	0
root-rot control	1,000-5,000	0	2,500-5,000	0	0-500	0
insect damage control	2,000-15,000	3,618	0	0	0-500	0
Precommercial thinning	3,000-10,000	3,332	100,000-200,000	34,983	10,000-25,000	19,087
Fertilization	4,000-10,000	0	30,000-115,000	13,235	0-10,000	0

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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
- Natural Areas Contributions
 - NAP and NRCA maps
 - Acquisitions and dispositions
 - Habitat and species protection
- Implementation Planning
- OESF
- Northern Spotted Owl

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Natural Area Preserves (NAPs) and Natural Resource Conservation Areas (NRCAs)

Summary of Changes 1997-2003



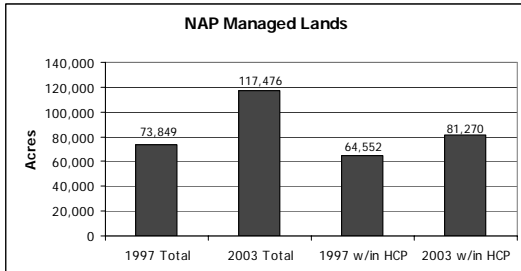
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West-side NAP/NRCA Lands - 1997



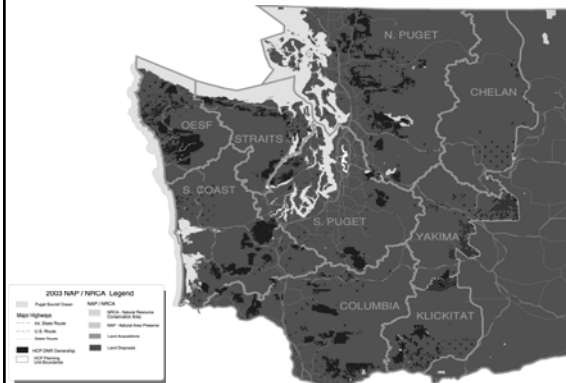
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NAPs and NRCAs Growing



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West-side NAP/NRCA Lands - 2003



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Natural Areas Program

Habitat and Species Protection



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Natural Areas Protect Habitat For:

- 12 species listed as Threatened or Endangered under the ESA; 10 found on NAPs/NRCAs within the range of the HCP
- 2 federal Candidate species
- Other sensitive species (e.g. Federal Species of Concern, State-Listed, and State Candidate)



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Threatened and Endangered Species Found on NAPs and NRCAs Within the Area Covered by the HCP

Species	Federal Status	Natural Area
Northern Spotted Owl ¹	Threatened	Camas Meadows NAP, Granite Lakes NRCA, Skagit Bald Eagle NAP, South Nemah NRCA, Table Mountain NRCA, Teal Slough NRCA, Trout Lake NAP, Morning Star NRCA, Mt. Pilchuck NRCA
Marbled Murrelet ²	Threatened	Bone River NAP, Clearwater Bogs NAP, Clearwater Corridor NRCA, Elk River NRCA, Niswakiem River NAP, South Nemah NRCA, South Nolan NRCA, Teal Slough NRCA, Willapa Divide NAP, Mt. Pilchuck NRCA
Bald Eagle	Threatened	Bone River NAP, Castle Rock NAP, Cattle Point NRCA, Chehalis River Surge Plain NAP, Dabob Bay NAP, Hat Island NRCA, Niswakiem River NAP, Point Doughty NAP, Sand Island NAP, Shipwreck Point NRCA, Skagit Bald Eagle NAP, Skookum Inlet NAP, Whitcomb Flats NAP, Woodward Bay NRCA, Kennedy Creek NAP
Bull Trout	Threatened	Chehalis River Surge Plain NAP, Carlisle Bog NAP, Olivine Bridge NAP, Skagit Bald Eagle NAP, Morning Star NRCA
Chinook Salmon – Puget Sound	Threatened	Kitsap Forest NAP, Mt. Si NRCA, West Tiger Mountain NRCA, Olivine Bridge NAP, Skagit Bald Eagle NAP
Chinook Salmon – Lower Columbia	Threatened	Klickitat Canyon NRCA
Steelhead – Lower Columbia	Threatened	Klickitat Canyon NRCA, Table Mountain NRCA
Golden Paintbrush	Threatened	Rocky Prairie NAP
Wenatchee Mtn. Checker-mallow	Endangered	Camas Meadows NAP
Swamp Sandwort ³	Endangered	Carlisle Bog NAP

¹ Only sites with established territories included

² Only occupied sites included

³ Reported but never confirmed. Surveys will be conducted in the summer of 2004.

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Habitat Contributions for Grizzly and Lynx

- North Cascades Grizzly Bear Recovery Zone: Morning Star; Mt. Pilchuck; Grieder Ridge NRCAs (26,308 acres) - w/in HCP, but no confirmed bear presence
- Grizzly bear and Canada lynx: Loomis NRCA (24,672 acres) - outside HCP

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Mature and Late Seral Forests Contributions

- 19 natural areas and...
- 54,937 acres within northern spotted owl's range



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Closing Thought

"Taken together, this information demonstrates the important contribution of DNR's natural areas to the protection of biodiversity and to the Department's HCP obligations."

– Scott Pearson, NAP Westside Ecologist

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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
- Natural Areas Contributions
- Implementation Planning
 - Current approach
 - Differences between landscape planning and implementation planning
- OESF
- Northern Spotted Owl

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Sustainable Forestry Implementation Plans for DNR Managed Forests

Current Approach

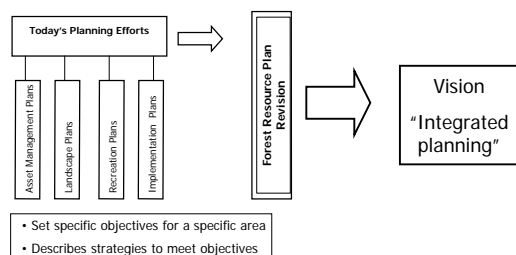
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The Purpose of an Implementation Plan is to Answer Three Questions About Forest Management:

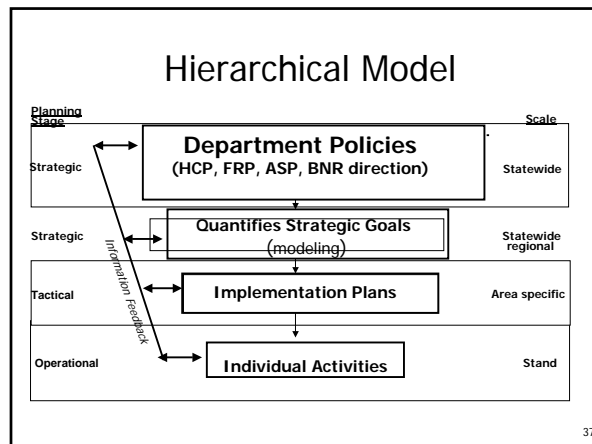
1. What type of activities can we implement across a landscape?
2. Where in the landscape can we implement these activities? (i.e. harvest, recreation, land transactions, NAPs, NRCAs)
3. What will be the combined effects of implementing these activities over time across the landscape?

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Other Planning Processes and Their Relationship to Sustainable Forestry Implementation Plans



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Landscape Planning vs. Implementation Planning

What's the difference?

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What is the Difference Between Sustainable Forestry Implementation Plans and Landscape Plans?

Landscape Plans- Current Process (107 plans)

- Focus on management objectives for a specific area of need.
- Bottom up approach to develop objectives
- Based on up-front assessment work
- Scale (few hundred acres to several thousand acres)
- Timing (10-year plan)
- SEPA analysis on management objectives (e.g. Lake Whatcom, Loomis)

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What is the Difference Between Sustainable Forestry Implementation Plans and Landscape Plans?

Implementation Plans (6 plans-westside)

- Focus on developing strategies and schedules to meet policy goals (HCP, FRP, BNR Policies, Procedures & Standard Practice Memorandums)
- Scale (HCP Planning Units)
- A comprehensive broad approach that includes a description of the specific policy objectives, opportunities and constraints and a proposed schedule of activities
- Top down approach to set objectives
- Bottom-up approach to set strategies
- Based on capturing what we know today and scheduling future activities
- Ability to incorporate previous planning work and plans
- Timing (10-year plan)
- SEPA Analysis

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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
- Natural Areas Contributions
- Implementation Planning
- OESF
 - Road Maintenance and Abandonment Plan
- Northern Spotted Owl

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OESF – Road Maintenance and Abandonment Plan (RMAP)

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OESF RMAP Rationale

- WAC 222-24-051 Road maintenance schedule. All forest roads must be covered under an approved road maintenance and abandonment plan within 5 years of the effective date of this rule or by December 31, 2005

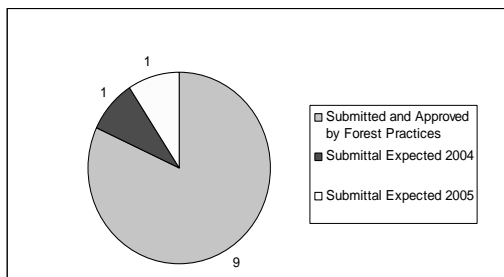
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OESF RMAP Background

- Began spring 2000
- Schedule developed: analyze ~20% of state forest roads annually
- Anticipated completion: fall 2005

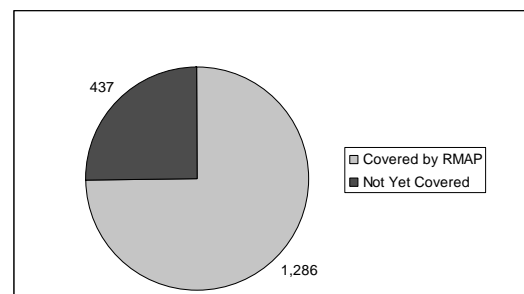
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OESF RMAP Approval Schedule



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OESF RMAP - Miles Covered



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Outline of Topics

- Summary of Land Transactions
- Summary of Timber Management Activities
- Natural Areas Contributions
- Implementation Planning
- OESF
- Northern Spotted Owl
 - Habitat evaluation
 - NRF and dispersal habitat amounts (west-side)
 - Better definition of owl nesting habitat
 - Klickitat owl amendment

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Northern Spotted Owl Habitat Evaluation



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Owl Habitat Evaluation

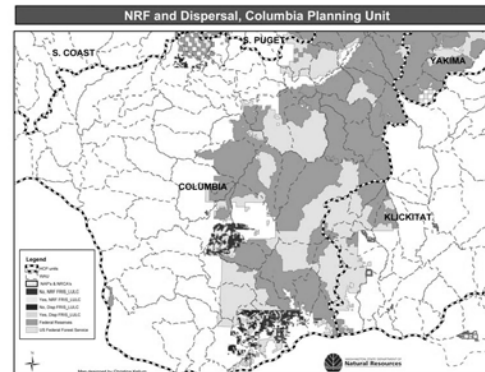
Conducted in NRF and Dispersal management areas in the Westside planning units

Methods

- Query of DNR Forest Resource Inventory database (FRIS2) and LULC database for habitat definitions' thresholds
- Intersection of FRIS layer with GIS layers of owl management, land transaction, WAU_97, and natural areas to determine habitat acreage per WAU

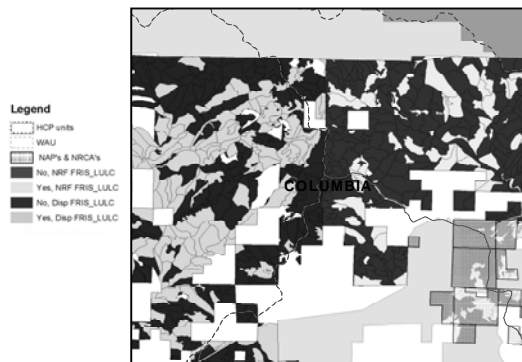
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Columbia Planning Unit



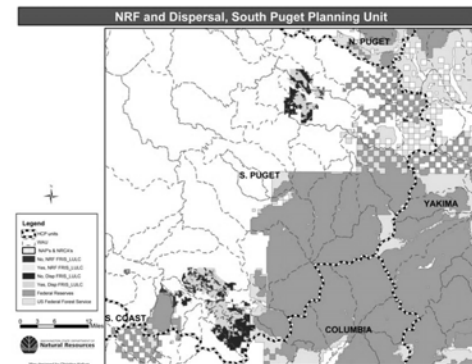
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Owl Habitat Delineation Based on FRIS2 Data



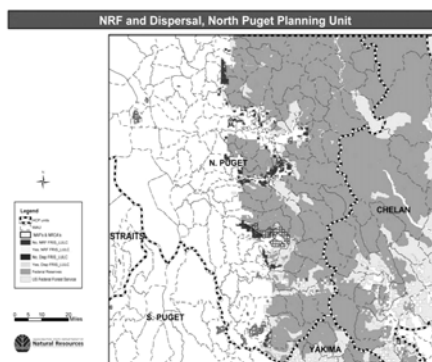
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South Puget Planning Unit



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North Puget Planning Unit



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Results

- 8 out of 66 WAU that contain designated NRF areas meet the requirement for 50% NRF habitat
- 13 out of 42 WAU that contain designated dispersal areas meet the requirement for 50% dispersal habitat

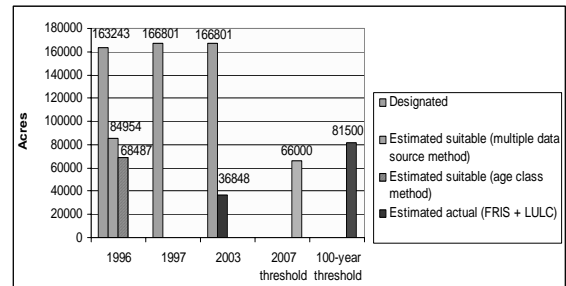
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NRF and Dispersal Habitat Amounts

Northern Spotted Owl

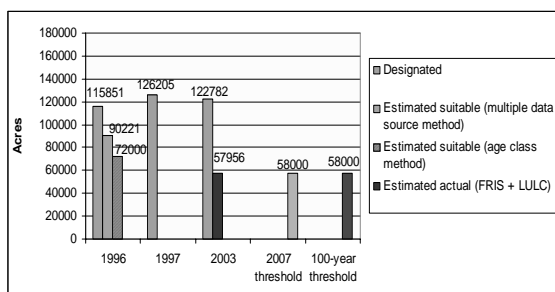
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NRF Habitat – Westside Planning Units



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Dispersal Habitat – Westside Planning Units



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Developing a Better Definition of Owl Nesting Habitat at the Stand Level

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Identified Problems

- Some variables are difficult to measure in the way they are described in the HCP
- Some important parameters of the owl habitat are not included in the definitions
- Some variables differ substantially from the values measured around known reproductively successful owl site centers
- Requirement for a stand to meet the threshold values of all variables included in the definitions results in a very low number of stands qualifying for habitat

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Progress So Far

1. DNR translated 2 of the habitat metrics to format more compatible with its inventory database:
70% canopy closure → Curtis relative density (RD) 50
5% ground cover of DWD → 2400 cubic feet of DWD / acre
2. Preliminary consultations and literature review to explore the idea of developing a multivariate model of owl habitat definitions at stand level
3. Several teams of DNR wildlife biologists and silviculturists tried to address the problems with the functionality of the current HCP definitions of owl habitat and the use of DNR's inventory (FRIS1) to evaluate the habitat conditions

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NRF Habitat Delineation in Southwest Region (2002)

- Addressed problem – few of the existing owl sites were identified by FRIS1 to exist in NRF habitat
- Sought to identify methodology to improve accuracy of habitat delineation
- Preferred method – integrated method using aerial photos and FRIS plot data
- Noted the need to refine NRF habitat definition, especially the threshold of “trees per acre” criterion and possibility of identifying habitat criteria as primary and secondary determinants of suitable habitat

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Structure & Composition of Spotted Owl NRF Habitat in Klickitat PU (2003)

- Addressed problem – NRF habitat (as defined by the HCP and evaluated using FRIS data) was rare despite history of successful owl reproduction
- Detailed (field, aerial, and FRIS) evaluation of stand characteristics conducted around successful sites
- Few stands meet HCP requirements for DWD and snags
- Suggested to review threshold values for snags/DWD and to explore the idea of two sets of values – “minimum acceptable levels” and “desired future conditions”
- Proposed exploring multivariate habitat model

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Klickitat Planning Unit

Proposed Amendment for
Addressing Forest Health and
Spotted Owls

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Klickitat Owl Amendment

- Administrative amendment started in 2002 in collaboration with the services and WA Department of Fish and Wildlife
- Amendment has gone through all review processes, including SEPA
- Anticipated timeline:
 - April 2004: final edits
 - May 2004: letter of approval from USFWS
 - June 2004: implementation

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Outline of Topics

- Marbled Murrelets
 - Interim and long-term conservation strategies
 - Inventory survey results
 - Long-term strategy planning team
- Other Species
- Monitoring and Research
- Funding for Monitoring and Research
- Implementation, Effectiveness and Validation Monitoring
- Strengthening HCP Implementation

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Interim and Long-Term Conservation Strategies for Marbled Murrelets



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Interim Conservation and Long-term Conservation Strategy Status Review

Planning Unit	Completed Habitat Relationship Study	Completed Inventory Surveys	Long-term Conservation Strategy in Progress	Long-term Conservation Strategy Complete
OESF	X	X ¹	X	Anticipated Jan 2005
South Coast	X	X	X	Anticipated Jan 2005
Columbia	X	X	X	Anticipated Jan 2005
Straits	X	X	X	Anticipated Jan 2005
North Puget ²	X	2008	2009	2010
South Puget ²		2010	2011	2012

¹Approximately 12,000 acres of lower quality, reclassified habitat remain unsurveyed in the OESF. This will be addressed in the long-term conservation strategy.

²North Puget and South Puget Planning Unit completion dates are estimates.

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Inventory Survey Results by Planning Unit

Planning Unit	Surveyed Reclassified Habitat Acres	Occupied %	Presence %	No Detection %
OESF	39,286	55%	37%	8%
South Coast Columbia	23,860	23%	8%	69%
Straits	14,810	23%	40%	37%
North Puget	5,400	18%	13%	69%

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Murrelet Surveys in North Puget PU 2001-2004

- Research results not expected, based on observations about murrelet occupancy and stand structure in other areas
- For NPPU only, DNR, USFWS, and WDFW agreed to address alternate conservation strategy implementation methods

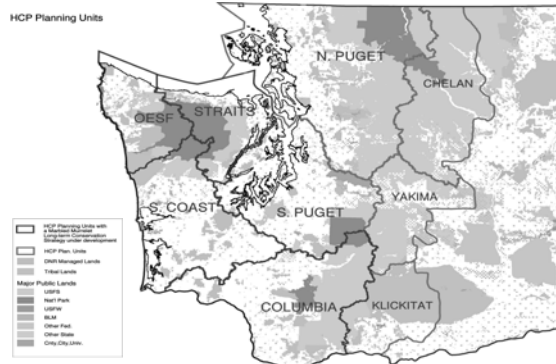
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South Puget PU Summary

- Spring 2004: region biologist to begin directing preliminary marbled murrelet habitat stand assessments
- 2005 or 2006: expect initiation of surveys (dependent on budget allocations)

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Long-term Marbled Murrelet Conservation Strategy Planning Units



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Long-Term Strategy Planning Team

- Created in fall 2003 to assist with long-term conservation strategy
- Representatives from DNR, USFWS, and WDFW
- Identified need for scientific summit to get input from murrelet experts for the conservation strategy

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Long-Term Strategy Timeline

- October 2003: summit took place
- December 2003: created a Scientific Advisory Group responsible for drafting long-term conservation strategy
- June/July 2004: draft plan to be delivered
- January 2005: final plan to be completed

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Outline of Topics

- Marbled Murrelet
- Other species
 - Grizzly update
 - Lynx update
- Monitoring and Research
- Funding for Monitoring and Research
- Implementation, Effectiveness and Validation Monitoring
- Strengthening HCP Implementation

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Grizzly Bear Update



- DNR participating in both the Technical Committee and Oversight Committee
- Anticipated timeline:
 - Jan 2005: DNR begins re-work on plan
 - June 2005: draft plan complete
 - July 2005: scientific review
 - Aug/Sept 2005: SEPA/NEPA review
 - Oct 2005: biological opinion complete and apply for ITP
 - Jan 2006: plan implementation

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Canada Lynx Update

- 1996: original plan created; 5-year update due in 2001
- 2000: became a federally listed species, incorporating 7 additional federal conditions
- Anticipated timeline:
 - April 2004: complete draft plan
 - May 2004: scientific review
 - June 2004: SEPA draft
 - August 2004: finalized plan
 - Sept 2004: FPB/BNR
 - Oct 2004: plan implementation



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Outline of Topics

- Marbled Murrelet
- Other species
- Monitoring and Research
 - Research relating to HCP priorities
 - Status of OESF implementation
 - Status of Type 5 stream research
 - Implementation of riparian management
- Funding for Monitoring and Research
- Implementation, Effectiveness and Validation Monitoring
- Strengthening HCP Implementation

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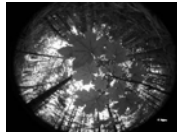
WA DNR HCP Research

Program: *supporting the continued development and improved implementation of the HCP Conservation Strategies*



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HCP Research 5-year Accomplishments



- Establishment of a coordinated research program based on modern adaptive management principles
- Establishment of an outside advisory group
- Adaptive management anticipated by department management
- Establishment of an extensive cooperator network of 40+ organizations/workgroups
- Initiation of 23+ projects

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Three Broad Research Objectives for the DNR HCP Research Program

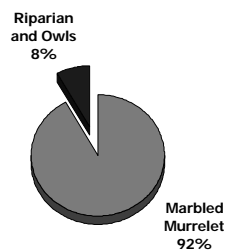
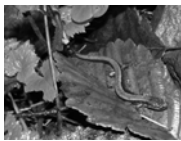


- To obtain information needed to move from short- to long-term conservation strategies
- To obtain information needed to assess and improve the effectiveness of the conservation strategies
- To obtain information needed to increase management options and commodity production opportunities for lands managed pursuant to the HCP

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Research Subject Areas and Funding Allocation in First 5 Years

- Marbled Murrelet
- Spotted Owl
- Riparian
- Multi-species



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Research within each subject is prioritized by the ability to provide the following information:



- Priority 1** Information that is a necessary part of a conservation strategy
- Priority 2** Information needed to assess or improve conservation strategies that are in place and/or increase management options and commodity production opportunities
- Priority 3** Information to improve general understanding of the animals, habitats, and ecosystems addressed by the HCP

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Progress on Marbled Murrelet Research

Priority	Subject	Progress
1	Which areas and habitat conditions support nesting murrelets?	Ongoing
1	Are some breeding areas more important than others?	Ongoing
1	Delineate the boundaries of breeding sites	Ongoing
1	Protect and manage breeding sites	Ongoing
1	Can murrelets colonize unoccupied suitable habitat?	Ongoing
2	Harvest at or near breeding sites	None
3	Basic information on murrelet ecology	Ongoing

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Priority 1 Marbled Murrelet Research



Subject	Project
<i>Determine which areas and habitat conditions support nesting murrelets.</i>	Habitat Relationship Study and Interim Conservation Strategy • Surveys conducted for 83,000 acres of state land • 1,464 potential nest sites evaluated <i>Principal Contact:</i> Danielle Escene, WA DNR
<i>Determine how to protect and manage breeding sites.</i>	Influence of Stand Structure, Proximity to Human Activity, and Forest Fragmentation on the Risk of Predation • Initiated in 1997 in the OESF; concluded in 2003 • Summary report completed <i>Principal Investigator:</i> Dr. John Marzluff, UW

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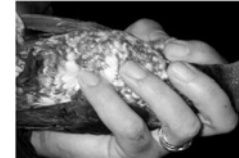
Priority 1 Marbled Murrelet Research

Subject	Project
Determine whether certain breeding sites are more important than others.	Population Ecology of Marbled Murrelets •Radio telemetry used to locate active nests •Initial tests completed, full implementation in spring 2004 <i>Principal Investigators:</i> Dr. Martin Raphael, USFS; Dr. John Marzluff, UW
Develop the ability to delineate boundaries of breeding sites.	Variation in Marbled Murrelet Activity Using Old-Growth Stands •4,500 surveys of murrelet activity conducted; Analysis initiated as graduate thesis <i>Principal Investigators:</i> Scott Horton, DNR; Dr. John Marzluff, UW
Determine whether nesting murrelets can colonize unoccupied suitable habitat.	
• 2 research projects with several parts	

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Priority 3 Marbled Murrelet Research

Subject	Project
Develop basic information on murrelet ecology.	At-Sea Distribution and Abundance of Marbled Murrelets in Relation to Marine Habitat on the Outer Coast of WA •Population estimated from data collected off shore •Project is part of a large, cooperative murrelet population study <i>Principal Investigators:</i> Dr. Chris Thompson, WDFW, and others
• 1 research project with several parts	



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Progress on Spotted Owl Research

Priority	Subject	Progress
1	Amount of down woody debris necessary for NRF and dispersal habitats	Ongoing
1	Better stand-level definitions for nesting habitat	Some
1	Amount of nesting habitat needed within managed forest landscapes	None
1	Better stand and landscape level definitions for dispersal habitat	None
1	Manage and harvest timber within NRF	Ongoing
2	Habitat configuration required to support spotted owls in managed forest landscapes	None
2	Accelerate development of functional NRF	Ongoing
2	Reduce risk of catastrophic loss	Ongoing
3	Snags as flying squirrel habitat in eastern WA	None


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Priority 1 Spotted Owl Research

Subject	Project
Determine the amount of down woody debris necessary for NRF and dispersal habitat.	Functional Role of Down Woody Debris and Long-Term Site Productivity •5 replicates in PNW, including 1 in OESF •Post-treatment data collection in progress <i>Principal Investigators:</i> Dr. Robyn Darbyshire and Dr. Bernard Bormann, USFS with cooperation from UW, WWU, OSU, and UO
• 1 project with several parts	
Develop better stand-level definitions for nesting habitat.	Example--Structure and Composition of Spotted Owl NRF Habitat in the Klickitat District •Project concluded; draft report available <i>Principal Investigators:</i> Scott Horton, Steve Wetzel, WA DNR.
• 3 research projects	

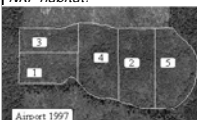
88

Priority 1 Spotted Owl Research

Subject	Project
Determine how to manage and harvest timber within NRF habitats.	Testing Silvicultural Treatments for Owl Habitat Management •Planning and design completed; some pre-treatment data collected; harvest delayed <i>Principal Investigator:</i> Dr. Richard Bigley, WA DNR.
• 3 research projects with several parts	Operational Feasibility for the Implementation of Habitat Creation Research on the OESF •Project concluded; report available <i>Principal Investigator:</i> Dr. Peter Schliess, UW
	Thinning and Access Strategy for Accelerated Stand Habitat Creation •Project concluded; report available <i>Principal Investigator:</i> Dr. Peter Schliess, UW

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Priority 2 Spotted Owl Research

Subject	Project
Accelerate the development of functional NRF habitat in conjunction with commercial silvicultural activities and timber harvest.	Managing Young Stand Composition and Structure for Forest Productivity and Biodiversity •Tests 4 PCT regimes •Initiated in 1999, post treatment data collection begun in 2003 <i>Principal Investigator:</i> Dr. Richard Bigley, WA DNR
• 3 research projects with several parts	
Reduce the risk of catastrophic habitat loss, while maintaining existing NRF habitat.	Alternatives for Management of Spotted Owl Habitat Klickitat HCP Planning Unit •Modeled stand growth and alternative silvicultural treatments to maintain and create NRF habitat •Analysis completed in 2003; manuscript in preparation • <i>Principal Investigator:</i> Dr. Bill Barber, WA DNR
	

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Progress on Riparian Research		
Priority	Subject	Progress
1	How to manage wind buffers	Ongoing
1	How to manage Type 5 streams	Ongoing
2	Harvest in RMZs to meet conservation objs.	Ongoing
2	Harvest on unstable slopes w/out landslides	None
2	Manage healthy RMZs with economic return	Ongoing
3	Riparian ecosystem function within managed forests	None
3	Forest management influence on hydrology and rain-on-snow floods	None

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Priority 1 Riparian Research	
Subject	Project
<i>Design and manage riparian buffers that maintain wind-firm streamside forests.</i> • 1 project with several parts	Windthrow in Riparian Areas • Prospective: 30 locations in W. WA • Retrospective: pending access to Stereo Analysis <i>Principal Investigator:</i> Dr. Richard Bigley, WA DNR
<i>Management activities along Type 5 waters.</i> • 1 literature review • 2 research projects with several parts	Small Stream Buffer Experimentation • 34 streams at 9 locations • Currently starting post treatment measurements • Principal Investigators: from WA DNR, USFS, UW, WA Dept. of Ecology

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Priority 2 Riparian Research	
Subject	Project
<i>Determine how to harvest timber and meet conservation objectives within riparian areas.</i> <i>Determine the best approach to growing healthy riparian buffers while managing for economic return.</i> • 2 projects with several parts	Restoring Riparian Ecosystems • Initiated in 1998 on the OESF • Post-treatment data collection ongoing <i>Principal Investigators:</i> USFWS and Dr. Richard Bigley, WA DNR Riparian Silviculture Modeling • Developed riparian modeling tool and riparian silvicultural prescriptions • Project concluded 2003 <i>Principal Investigators:</i> Jason Cross, ONRC; Dr. Richard Bigley, WA DNR

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Priority 3 Riparian Research	
Subject	Project
<i>Develop basic information on the relationships between forest management and riparian ecosystems.</i> • 2 modeling projects • 1 experimental study • 1 observational study	Riparian Adaptive Management Support Tools Modeling the Clearwater River Watershed with Ecosystems Diagnostics and Treatment (EDT) Functional Role of Down Woody Debris and Long-Term Site Productivity Landslide Characterization and Salmon Spawning Gravel Changes

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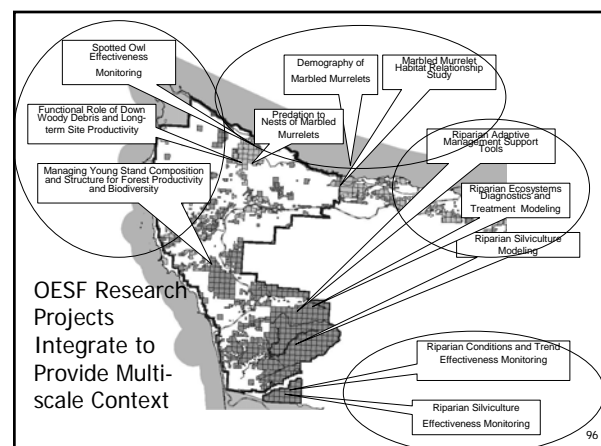
Status of OESF Implementation



"In the OESF, DNR will seek to answer questions about integrating conservation and production.

DNR will explore the links between management activities and ecological processes and functions at both the landscape and the stand levels."

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Status of Type 5 Stream Research



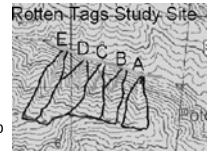
97

Type 5 Research Commitment

... "a research program shall be initiated to study the effects of forest management along Type 5 waters located on stable slopes."

... "a long-term conservation strategy for forest management along Type 5 waters shall be developed and incorporated into this HCP as part of the adaptive management component."

... "research to study the effects on aquatic resources of forest management in and around seeps and small wetlands will be included in research programs for Type 5 waters."



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Small Stream Buffer Experimentation

- Cooperative research project between DNR, USFS Forest Sciences Laboratory and the University of Washington
- Initiated in 1999, currently nine timber sales (study sites) that include 34 streams in the Capitol State Forest and Pacific County
- Pre treatment sampling now complete
- Post treatment sampling will begin in summer 2004

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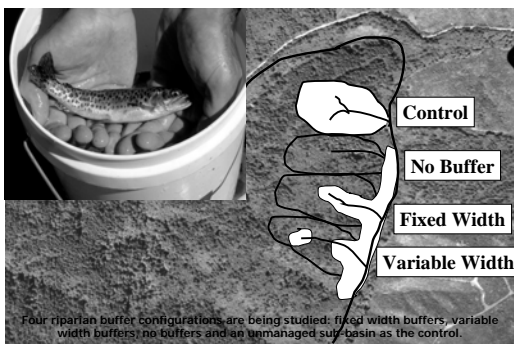


DNR Type 5 Research Overview

- What specific Type 5 stream functions should be protected and how will these be measured?
- How does timber harvesting affect Type 5 stream functions, i.e., sediment delivery, channel morphology, water chemistry, changes in plant communities, water levels and amphibian and invertebrate populations?
- What are the options for protecting Type 5 stream functions within the scope of the WADNR Habitat Conservation Plan riparian management strategy?

100

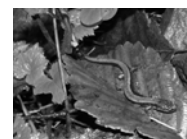
Conceptual Buffer Configuration



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Current Research is Studying the Effects of Different Buffer Configurations On:

- Litter fall input
- Aquatic invertebrates
- Stream associated and terrestrial amphibians
- Small mammals
- Stream temperature
- Down woody debris inventory
- Fish
- Understory vegetation
- Stand composition
- Water levels
- Channel head migrations

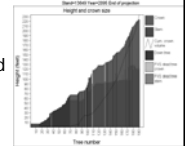
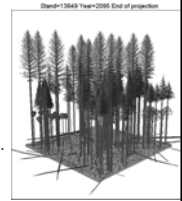


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Riparian Restoration Strategy

- December 2003: first draft of riparian restoration strategy completed based on 1999 science committee recommendations. Initial review by the Services
- March 2004: Second draft reviewed by the Services
- Anticipated timeline:
 - April 2004: review by tribes, environmental community, regions, and programs
 - May 2004: undergo SEPA review
 - June 2004: adoption
 - Sept/Oct 2004: training phase
 - Nov 2004: implementation



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Outline of Topics

- Marbled Murrelet
- Other species
- Monitoring and Research
- Funding for Monitoring and Research
 - Funding Sources
 - Budget Allocation
 - Expenditures
- Implementation, Effectiveness and Validation Monitoring
- Strengthening HCP Implementation

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Funding for HCP Monitoring and Research

A Brief Overview

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Funding for HCP Monitoring and Research: Funding Sources

- DNR generates revenue for the trusts, as mandated by the Enabling Act.
- Of the revenue generated by the trusts, 75% goes to the beneficiaries and 25% goes back to DNR to support land management activities.

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Funding for HCP Monitoring and Research: Budget Allocation

- Every biennium, DNR prepares a budget which is funded out of the management funds. The budget is then submitted to the legislature for allotment and approval.
- The funds needed for the implementation, monitoring and research of the HCP are a part of the budget that is presented to the legislature every biennium for approval. The following charts reflect the amounts allotted since 1997 for HCP monitoring and research.

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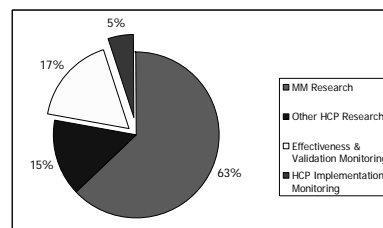
HCP Monitoring and Research

Expenditures
1997-2005

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HCP Monitoring and Research
Expenditures 1997-2003

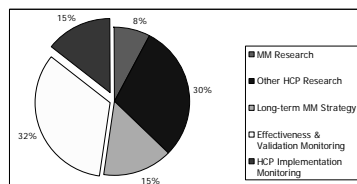
Funding Area	Expenditure
MM Research	4,965,123
Other HCP Research	1,193,671
Effectiveness and Validation Monitoring	1,357,151
HCP Implementation Monitoring	400,000
Grand Total	7,845,951



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HCP Monitoring and Research
Expenditures 2003-2005*

Funding Area	Expenditure
MM Research	275,000
Other HCP Research	1,055,000
Long-term MM Strategy	530,000
Effectiveness & Validation Monitoring	1,186,300
HCP Implementation Monitoring	519,100
Grand Total	3,565,400

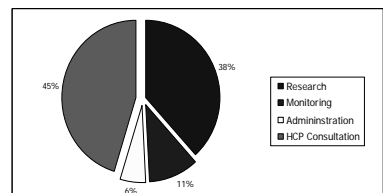


*Numbers reflect allotment plan, not actual expenditures

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HCP Program Expenditures
1997-2003

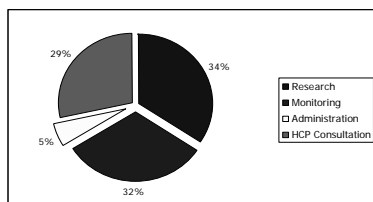
Funding Area	Expenditure
Research	6,158,800
Monitoring	1,757,151
Administration	898,139
HCP Consultation	7,272,632
Grand Total	16,086,452



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HCP Program Expenditures
2003-2005*

Funding Area	Expenditure
Research	1,860,000
Monitoring	1,705,400
Administration	282,600
HCP Consultation	1,540,500
Grand Total	5,388,500



*Numbers reflect allotment plan, not actual expenditures

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Outline of Topics

- Marbled Murrelet
- Other species
- Monitoring and Research
- Funding for Monitoring and Research
- Implementation, Effectiveness and Validation Monitoring
 - Strengthening HCP Implementation

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Implementation, Effectiveness and Validation Monitoring

A Brief Overview

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Implementation, Effectiveness and Validation Monitoring

- Were the conservation strategies implemented as written? (Implementation)
- Did implementation of the strategies result in the anticipated habitat conditions? (Effectiveness)
- Evaluate the cause-and-effect relationships between habitat conditions resulting from implementation of the conservation strategies and the animal populations that these strategies are intended to benefit (Validation)

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Monitoring Overview

- Prior to 2001, implementation, effectiveness and validation monitoring were limited due to staffing and funding priorities
- Beginning in 2001, administrative changes (organizational and funding reallocations) have enabled a new emphasis on implementation, effectiveness and validation monitoring

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DNR Has Added Staff to Facilitate:

- Implementation Monitoring (centralized approach)
- Effectiveness and Validation Monitoring (a more detailed, specific strategy approach)
- Riparian Effectiveness Monitoring
- Spotted Owl Effectiveness and Validation Monitoring
- Marbled Murrelet Monitoring (to begin after the long-term strategy is completed)
- Sediment Monitoring (roads)
- Unstable Slopes Monitoring

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Implementation Monitoring Then...and Now

- Began as a Region responsibility
 - Review criteria were mostly subjective; no yearly reports prepared
- In 2001 HCP Monitoring and Scientific Section established
 - Centralized reviews
 - Review criteria now objective; yearly reports prepared

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Implementation Monitoring Accomplishments

- Completed Pilot Project in 2002
 - 2 Planning Units selected
 - Reviewed *Activities*
- Completed 1st Annual Review in 2003
 - All Planning Units reviewed
 - Reviewed HCP *Elements* (strategies)
 - Samples were stratified, then randomly selected

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Effectiveness Monitoring Accomplishments

- Strategic planning on monitoring designs
- Modeling the effects and economic viability of different silvicultural prescriptions on development of spotted owl habitat
- Draft monitoring plans written for riparian and spotted owl
- Draft monitoring plans in development for roads and unstable slopes
- Several ongoing projects (many done in conjunction with the research projects outlined in the Research Priorities and Topics attached as a supplemental document to this presentation)

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Effectiveness Monitoring Future Projects

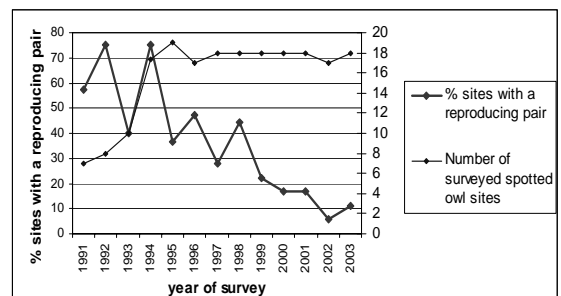
- Update and complete riparian and owl monitoring plans
- Complete unstable slopes and roads monitoring plans
- Spotted owl habitat creation and restoration (Pacific Cascade and South Puget Sound Regions)
- Monitoring sediment from roads (Pacific Cascade Region)
- Unstable slopes project (Kalaloch)
- Riparian monitoring (silviculture, instream conditions and trends, forest integrity)

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Spotted Owl Validation Monitoring

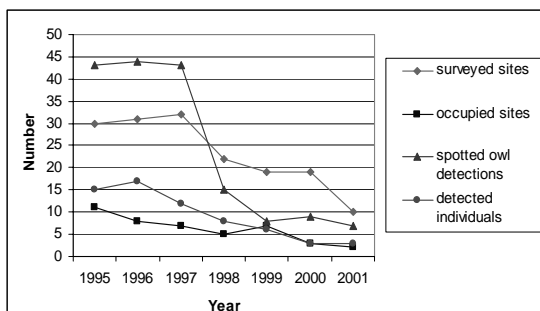
123

Spotted Owl Validation Monitoring in Eastside Planning Units



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Spotted Owl Validation Monitoring in OESF

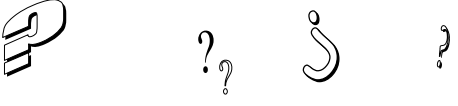


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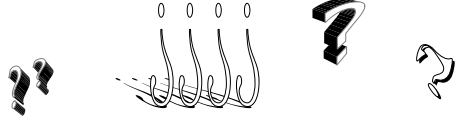
Outline of Topics

- Marbled Murrelet
- Other species
- Monitoring and Research
- Funding for Monitoring and Research
- Implementation, Effectiveness and Validation Monitoring
- Strengthening HCP Implementation
 - Discussion

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How can the Services and DNR maintain and strengthen implementation of the HCP?



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Objectives For This Review

- Input from USFWS and NOAA Fisheries
 - Where do you think we have been successful?
 - Where do you think we need improvement?
 - What are your expectations for the next 5 year period?

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